ACCESSION #: 9609040216

LICENSEE EVENT REPORT (LER)

FACILITY NAME: SURRY POWER STATION, Unit 2 PAGE: 1 OF 4

DOCKET NUMBER: 05000281

TITLE: Manual Reactor Trip Due To Loss Of Electro Hydraulic

Control Pressure

EVENT DATE: 08/03/96 LER #: 96-005-00 REPORT DATE: 08/26/96

OTHER FACILITIES INVOLVED: DOCKET NO: 05000

OPERATING MODE: N POWER LEVEL:

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR SECTION:

50.73(a)(2)(iv)

LICENSEE CONTACT FOR THIS LER:

NAME: D. A. Christian, Station Manager TELEPHONE: (804) 357-3184

COMPONENT FAILURE DESCRIPTION:

CAUSE: SYSTEM: COMPONENT: MANUFACTURER:

REPORTABLE NPRDS:

SUPPLEMENTAL REPORT EXPECTED: NO

ABSTRACT:

At 1505 on August 3, 1996, with Unit 2 at 88% power, the control room operators manually tripped the reactor when steam/feed flow mismatch alarms were received. The alarms resulted from the closure of the turbine governor valves due to a loss of Electro Hydraulic Control (EHC) fluid pressure which occurred due to the failure of a mechanical fitting joint in EHC piping.

Upon receipt of the manual reactor trip, Reactor Protection System functioned as designed and all control rods inserted into the core. Station operating personnel promptly placed the plant in a stable, Hot Shutdown condition in accordance with the proper

procedures. The shutdown margin was calculated and found to be satisfactory. The health and safety of the public were not affected by this event.

1.0 DESCRIPTION OF THE EVENT

On August 3, 1996, an alarm was received in the Main Control Room

for a low level in the turbine Electro, Hydraulic Control (EHC)

Reservoir. A leak, identified in a vertically mounted one inch

compression fitting union [EIIS-TG-TBG], was located on the

emergency trip header for the turbine governor and intercept valves.

The leak was from the bottom portion of the fitting. The decision

was made to stop the leak by tightening the fitting. An operations

briefing was held to identify potential problems and requisite

actions. While tightening the lower portion of the union, the

tubing separated from the upper portion of the same union releasing

EHC fluid.

Figure "Upper Section" omitted.

At 1505 hours on August 3, 1996, with Unit 2 at 88% power, the control room operators manually tripped the reactor when steam/feed flow mismatch alarms were received. The steam/feed flow mismatch alarms resulted from the closure of the turbine governor valves due to the loss of EHC fluid pressure.

Upon receipt of the manual reactor trip, the Reactor Protection System (RPS) functioned as designed and control rods [EIIS-JD-ROD] inserted into the core. Initially, four Individual Rod Position Indicators (IRPIs) indicated between 10 and 12 steps. However, all Union Body indicators drifted to zero steps within approximately two minutes of the trip. The Reactor Coolant System (RCS) was borated in accordance with procedures. A shutdown margin calculation verified adequate shutdown margin.

Figure "Lower Section" omitted.

The Auxiliary Feedwater System [EIIS-BA] Lower automatically initiated as designed on low low steam generator level. Primary RCS temperature decreased to no load Tavg following the trip. No primary or secondary power operated or safety relief valves [EIIS-RV] actuated during the transient. All electrical busses transferred properly and all emergency diesel generators [EIIS-EK] were operable.

Upon completion of repairs to the EHC system and the Post Trip

review, Unit 2 was taken critical at 0057 hours on August 5, 1996 and returned to 100% reactor power at 2051 hours.

In accordance with 10CFR50.72(b)(2)(ii), a 4-hour Non-Emergency report to the NRC operations center was made at 1731 hours due to the Reactor Protection System (RPS) actuation.

This event is being reported pursuant to 10 CFR 50.73(a)(2)(iv).

2.0 SIGNIFICANT SAFETY CONSEQUENCES AND IMPLICATIONS

Upon receipt of the manual reactor trip, the RPS functioned as designed and all control rods inserted into the core. Station operating personnel promptly placed the plant in a stable, Hot Shutdown condition in accordance with the proper procedures. The shutdown margin was calculated and found to be satisfactory. The health and safety of the public were not affected by this event.

3.0 CAUSE OF THE EVENT

The cause of the reactor trip was a loss of EHC pressure from an improperly installed compression fitting. This failure caused the turbine governor and intercept valves to close. The control room operators manually tripped the reactor when steam/feed flow mismatch alarms were received.

A Root Cause Evaluation was initiated to investigate the compression fitting failure. This investigation determined that the fitting's ferrule had not been properly set onto the tubing due to inadequate crimping torque. The root cause of the fitting failure and

subsequent reactor trip was identified as improper work practices. There are no documented incidents of leaking fittings in the supply tubing between the hydraulic skid and the tees that branch off to the valve actuators and the emergency trip block where the failed fitting was located. It could not be determined when the one inch compression fitting unions were installed, however, it was verified that these fittings were not assembled during the recent Unit 2 refueling outage.

4.0 IMMEDIATE CORRECTIVE ACTION(S)

Following the reactor trip at 1505 hours on August 3, 1996, control room operators initiated the appropriate emergency operating procedures. The reactor trip breakers were verified open and control rods were verified inserted into the core.

The Shift Technical Advisor monitored the critical safety function status trees to ensure that plant parameters remained within safe bounds. A shutdown margin calculation verified adequate shutdown margin.

5.0 ADDITIONAL CORRECTIVE ACTION(S)

The two compression fitting union connections on the leaking fitting were repaired. Additionally, an evaluation of other similar Unit 2 EHC tubing compression fittings using a GO/NO GO gauge was performed. Four additional union fitting connections on two union

fittings were identified as having loose ferrules and were repaired.

Four IRPIs indicated between 10 and 12 steps and then drifted to zero steps approximately two minutes after the trip. The four IRPIs were checked, in the zero position. Minor adjustments to the signal conditioning card for 1 IRPI was made. No adjustments were required for the remaining three. Prior to the startup hot rod drops were performed on Shutdown Bank "A" and Control Banks "B" and "D" (locations of the four rods). All data collected was satisfactory and no anomalies were noted.

6.0 ACTIONS TO PREVENT RECURRENCE

An inspection of Unit 1 EHC tubing was performed. No visible leaks were identified.

Additional recommendations from the Root Cause Evaluation will be reviewed by management. Approved recommendations will be implemented.

7.0 SIMILAR EVENTS

LER 2-92-08-00, Rx Coolant System Leak Rate Greater Than 10 GPM due to a Failure of a Swagelok Fitting on a Flow Transmitter

8.0 ADDITIONAL INFORMATION

Unit 1 was operating at 100%.

LER 2-96-005

Manual Reactor Trip Due to Loss of Electro Hydraulic Control Pressure

VOA

1. Unit 2 Control Room Logs 8/3/96 - 8/4/96

2. Shift Supervisor Logs 8/3/96 - 8/4/96

3. STA Logs 8/3/96 - 8/4/96

4. DR S-96-1650

5. Work Order 346429-01

6. Reactor Trip Report S2-08-03-96

7. Root Cause Evaluation 96-05

Action Plan

1. Additional recommendations from the Root Cause Evaluation will be reviewed by management. Approved recommendations will be implemented.

10CFR50.73

Virginia Electric and Power Company

Surry Power Station

5570 Hog Island Road

Surry, Virginia 23883

August 26, 1996

U. S. Nuclear Regulatory Commission Serial No.: 96426

Document Control Desk SPS: JDK

Washington, D.C. 20555 Docket No.: 50-281

License No.: DPR-37

Dear Sirs:

Pursuant to Surry Power Station Technical Specifications, Virginia

Electric and Power Company hereby submits the following Licensee Event

Report applicable to Surry Power Station Unit 2.

REPORT NUMBER

50-281/96-005-00

This report has been reviewed by the Station Nuclear Safety and Operating

Committee and will be forwarded to the Management Safety Review Committee

for its review.

Very truly yours,

D. A. Christian

Station Manager

Enclosure

cc: Regional Administrator

101 Marietta Street, NW, Suite 2900

Atlanta, Georgia 30323

M. W. Branch

NRC Senior Resident Inspector

Surry Power Station

ATTACHMENT 1 TO 9609040216 PAGE 3 OF 3

Attachment "VIRGINIA POWER CORRESPONDENCE REVIEW AND APPROVAL FORM"

omitted.

*** END OF DOCUMENT ***